

What is claimed is:

1. A wear resistant iron base alloy comprising:
  - a) about 2.0 to about 4.0 wt % carbon
  - b) about 3.0 to about 9.0 wt % chromium;
  - c) about 1.0 to about 3.0 wt % silicon;
  - d) about 0 to about 6.0 wt % cobalt;
  - e) about 5.0 to about 15.0 wt % of molybdenum;
  - f) about 3.0 to about 15.0 wt % nickel;
  - g) about 0.0 to about 6.0 wt % vanadium;
  - h) about 0.0 to about 4.0 wt % niobium;
  - i) about 0 to about 4.0 wt % manganese;
  - j) about 0 to about 6.0 wt % tungsten;
  - k) the balance being iron, totaling 100 % by weight.
2. A part for internal combustion engine component comprising the alloy of claim 1.
3. The part of claim 2 where the part is formed by casting the alloy, hardfacing with the alloy either in wire or powder form or the part is formed by powder metallurgy method.
4. The alloy composition of claim 1 wherein the amount of carbon is between about 2.2 wt % and about 2.6 wt %.

5. The alloy composition of claim 1 wherein the amount of chromium is between about 5.0 wt % and about 8.0 wt %.
6. The alloy composition of claim 1 wherein the amount of silicon is between about 1.5 wt % and about 2.5 wt %.
7. The alloy composition of claim 1 wherein the amount of cobalt is about 0 wt %.
8. The alloy composition of claim 1 wherein the amount of molybdenum is between about 5.0 wt % and about 15.0 wt %.
9. The alloy composition of claim 1 wherein the amount of nickel is between about 6.0 wt % and about 10.0 wt %.
10. The alloy composition of claim 1 wherein the amount of vanadium is between about 1.0 and about 3.0 wt %.
11. The alloy composition of claim 1 wherein the amount of niobium is between about 1.0 wt % and about 2.0 wt %.
12. The alloy composition of claim 1 wherein the amount of manganese is between about 0 and about 0.8 wt %.

13. The alloy composition of claim 1 wherein the amount of tungsten is between about 0.5 and about 2.5 wt %.

14. The alloy composition of claim 1 wherein the amount of iron is greater than about 45.0 wt %.

15. A wear resistant valve insert comprising

An iron base alloy comprising:

- a) about 2.0 to about 4.0 wt % carbon
- b) about 3.0 to about 9.0 wt % chromium;
- c) about 1.0 to about 3.0 wt % silicon;
- d) about 0 to about 6.0 wt % cobalt;
- e) about 5.0 to about 15.0 wt % of molybdenum;
- f) about 3.0 to about 15.0 wt % nickel;
- g) about 0.0 to about 6.0 wt % vanadium;
- h) about 0.0 to about 4.0 wt % niobium;
- i) about 0 to about 4.0 wt % manganese;
- j) about 0 to about 6.0 wt % tungsten;
- k) the balance being iron, totaling 100 % by weight.